

USAWC STRATEGY RESEARCH PROJECT

THE HUMAN DIMENSION OF TRANSFORMATION

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ABSTRACT

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The transformation of the U.S. military and the Department of Defense represents a complex process which has been evolving since the end of the Cold War. Successful transformation will require a cultural change that focuses on producing forces that, when integrated with all elements of national power, will achieve desired effects to defeat any enemy's capabilities. It is the human dimension of transformation -- the educated, well-trained, values oriented service member -- that will have the greatest impact on the transformation process. Technology is an enabler and a catalyst for change, but it is the practitioner of war that will determine how the technology will be employed to achieve desired effects.

Transformation is an intellectual process and must begin with the mind of the leader. The leader must understand the changing environment, be able to rapidly adapt, and employ innovative approaches to produce the desired effects on potentially changing enemy capabilities. Transformation is a strategic process that should be based on sound strategic theory and principles. Its concepts should be derived from historical lessons learned. The intent of this paper is to examine transformation in terms of the human dimension, provide some recent examples of how the transformation concepts have evolved, and offer recommendations to insure the transformation effort proceeds on a logical path. The human dimension is the decisive factor in transformation. It will take service members training and operating as a joint force, with a focused effort in developing innovative solutions, encouraged by a military with a learning culture that will make this process successful.

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PREFACE

War is a special activity, different and separate from any other pursued by man. This would still be true no matter how wide its scope, and though every able-bodied man in the nation were under arms. An army's military qualities are based on the individual who is steeped in the spirit and essence of this activity; who trains the capacities it demands, rouses them, and makes them his own; who applies his intelligence to every detail; who gains ease and confidence through practice, and who completely immerses his personality in the appointed task.

— Carl Von Clausewitz, *On War*

As we prepare for the future, we must think differently and develop the kinds of forces and capabilities that can adapt quickly to new challenges and to unexpected circumstances. We must transform not only the capabilities at our disposal but also the way we think, the way we train, the way we exercise, and the way we fight. We must transform not only our armed forces but also the Department that serves them by encouraging a culture of creative and prudent risk taking. We must promote an entrepreneurial approach to developing military capabilities, one encourages people to be proactive, not reactive, and anticipates threats before they emerge.

— Secretary of Defense Donald Rumsfeld
Transformation Planning Guidance
April 2003

THE HUMAN DIMENSION OF TRANSFORMATION

... the essential nature of war has not changed. Wars are fought by men, and there has been no discernible difference in the fundamental nature of man over the past five thousand years of recorded history. Because the nature of man has not changed, neither has his basic objective when he turns to war: the employment of lethal instruments to force his will upon other men with opposing points of view.

— Colonel N.T. Dupuy, *Understanding War*, 1987.

The transformation of the U.S. military and the Department of Defense represents a complex process which has been evolving since the end of the Cold War. Successful transformation will require a cultural change that focuses on producing forces that, when integrated with all elements of national power, will achieve desired effects to defeat any enemy's capabilities. The Army Transformation Roadmap suggests that the nation requires a joint force that can meet the strategic mandates established by the National Security Strategy (NSS) and further elaborated in the Defense Planning Guidance (DPG), Quadrennial Defense Review (QDR), Transformation Planning Guidance (TPG), and Joint Operations Concepts (JOpsC).¹ These documents provide the framework and concepts to determine the future path the military seeks, but it is the human dimension of transformation -- the educated, well-trained, values oriented service member -- that will have the greatest impact on the transformation process. Technology is an enabler and a catalyst for change, but it is the practitioner of war that will determine how the technology will be employed to achieve desired effects and that will affect the cultural changes required to adapt to the changing security environment.

Transformation is commonly used to describe changes in organizations and equipment, but it has greater impact on the culture and members of the force. It is less important to change the things that forces use to make war than it is to change the way forces think about the effects they produce when using them. Transformation is an intellectual process and must begin with the mind of the leader. The leader must understand the emerging environment as projected in Joint Vision 2020, Defense Planning Guidance, and other assessments, and he must comprehend the adjustments that will be required to operate effectively in that environment. If services field new equipment and adopt new organizations, but continue to think about the application of force in the old ways then there is no material advantage. According to the Department of Defense's Planning Guidance, "Transformation is a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people, and organizations that exploit our nation's advantages and protect against

our asymmetric vulnerabilities to sustain our strategic position, which helps underpin peace and stability in the world.”² Transformation is incomplete if the focus is primarily on technology or organizational change rather than leadership and service culture. The numerous transformation documents at Department of Defense and Army level clearly articulate all the components required for change. How does the nation insure transformation remains on course? What are the proper transformational concepts? The changes in the strategic environment in the post Cold War era, the predominance of the information age, and the introduction of new technologies such as precision munitions, stealth aircraft, advanced sensors, and digitization of the battlefield demand that the joint force transform to meet potential capabilities of future adaptive enemies. The intent of this paper is to examine transformation in terms of the human dimension, provide some recent examples of how the transformation concepts have evolved, and offer recommendations to insure the transformation effort proceeds on a logical path.

Transformation is a strategic process that should be based on sound strategic theory and principles. Its concepts are derived from historical lessons learned. When examining insights garnered from previous conflicts, it is difficult to isolate how military actions affected political objectives without a holistic view of the factors involved. Colin Gray asserts in his book, *Modern Strategy*, that “there is an essential unity to all strategic experience in all periods of history because nothing vital to the nature and function of war and strategy changes.”³ Gray presents seventeen dimensions of strategy that provide an excellent framework to understand past conflicts and their implications for transformation. The human dimension and strategic culture are essential to gaining an understanding of this process. Gray posits, “Tactical achievement has meaning only in terms of operational intention and strategic effect.”⁴ As statesmen and military leaders glean lessons learned from historical case studies as well as recent operations, they need to avoid focusing on tactical level successes and shortcomings. They need to evaluate case studies holistically focusing on the human dimension and strategic culture of both their forces and those of the enemy.

TRANSFORMATION CONCEPTS

Neither policies nor machines will determine the history of tomorrow. Man is the measure of all things...This, then, is the ultimate battlefield: the hearts and minds of men.

— Hanson W. Baldwin (JP 3-16, pIII-1)

The Joint Staff and Joint Forces Command, with input from the services, developed the Joint Operations Concepts (JOpsC) to support the Defense Planning Guidance. The intent of

this initiative was to provide the services with a series of concepts to form the framework for how joint forces might operate in the future. The Joint Operating Concepts, the joint functional concepts, and the enabling concepts attempt to refine this framework to guide the integration of a broad range of military capabilities. A kluge of services does not make a force joint. People make it joint by internalizing the joint concepts. These concepts represent an effort to link the “strategic guidance with the integrated application of joint force capabilities.”⁵ The major cultural shift in this concept is that the application of joint forces focuses on defeating a broad range of potential enemy capabilities across the spectrum of military operations and not any one specific threat. This conception of future combat operations requires a transformation in the fashion in which the United States conducts joint military operations. The continuous transformation process outlined in the Joint Operations Concepts is the tool the Department of Defense will use to assess proposed systems, define required capabilities, and validate joint war-fighting requirements. It has major implications on the “development and acquisition of future capabilities across doctrine, organization, training, materiel, leadership and education, personnel, and facilities.”⁶

This concept is an attempt to overcome service parochialism and organizational culture in order to achieve the interdependence of joint forces. To defeat future potential capabilities that enemies might possess, this joint war-fighting concept postulates that the future joint force must be fully integrated, expeditionary, networked, decentralized, adaptable, decision-superior, and lethal. By adapting the forces to counter potential enemy capabilities, the concept envisions a force that can “achieve full spectrum dominance – the ability to sense, understand, decide, and act faster than any adversary in any situation.”⁷ Hence, the effectiveness of the joint force ultimately hinges on the human dimension which comprises the sensors, the decision makers, and the ones employing the capabilities to achieve the desired effects.

The Army's transformation strategy is to transform the Army culture through leadership and adaptive institutions, develop capabilities by conducting experimentation, analysis, and capabilities assessments in collaboration with the other services and Joint Forces Command, and then build the transformational capabilities into the joint force through training, exercises and simulations as well as evaluating these capabilities in real world operations whenever possible.⁸ This strategy requires a global joint expeditionary land force that is ready, deployable and designed to fight as part of the joint force on land, so the Army must focus on how it will contribute to winning the joint warfight – not on moving the old force faster.⁹ This concept forces the services to depend on each other. These collaborative efforts enhance trust and cooperation – both are part of the human dimension.

TRANSFORMATION PROCESSES

A transformed mindset is one that can handle the chaotic and uncertain situations created by the collapse of political, economic, and security systems. Leaders must be able to operate in countries that have no effective governments, where the enemy and front lines are not easily identifiable, and rules of engagement are conflicting. Our forces are expected to deal with terrorists, drug traffickers, warlords, militant fundamentalists, and paramilitary units – and still be able to overcome large maneuver formations and formidable defense systems.

— BG (Ret) David L. Grange

The Army's transformation plan in accordance with the joint operations concept is to develop modular brigade-sized force packages that can provide the combatant commander with a tailored force supported with the required capabilities designed to produce the effects against enemy capabilities instead of a specific threat. These force packages are organized into maneuver and support units of action, with the command and control units of employment. These units are tailorable to allow the Joint Task Force Commander the capability to assemble and fight with powerful, lethal, agile units as part of a joint force to produce the desired effects against the enemy. This requires a balance of capabilities, resources and risk. Hence, given the interdependency among the services, thinking "joint" is essential to mission success.

The concept of effects-based operations is an effort to provide a framework to achieve an effect on the human dimension of the enemy. According to the U.S. Joint Forces Command, "Effects-Based Operations (EBO) is a process for obtaining a desired strategic outcome, or effect, on the enemy through the synergistic and cumulative application of the full range of military and nonmilitary capabilities at the tactical, operational, and strategic levels."¹⁰ This approach recognizes that technology alone is not the driving force in campaigns. Only people can make EBO coherent.

Decision support tools such as the Operational Net Assessment (ONA) and the Collaborative Information Environment (CIE) serve as a ready source of information for the combat commanders and can assist staffs much like eaves-dropping on radio nets to gain an understanding of what is happening on the battlefield to anticipate possible requirements of support without hindering operations of the element in the field. The same is true with joint intelligence, surveillance, and reconnaissance efforts. These efforts must provide the commanders and staffs not in direct contact the ability to monitor, gain understanding of the situation, and anticipate requirements and changes to the plan without distracting the element in contact. These tools allow the commander to gain situational awareness and visualize the battlefield without being obtrusive on the subordinate element engaged in the fight. All efforts

must be taken not to inflict centralized control “from afar” because this will have a detrimental effect on the immediate action and will undermine the initiative and confidence in the networked sensor system to assist the element in contact. The informational picture given does not present the full situation that the commander on the ground has since he is aware of the human and psychological factors which interact with the force. It is the uncertainty and friction that he must overcome to defeat the enemy. Understanding the limitations of technology is a critical component of usage. Hence the leader is the centerpiece of the process because he/she uses the input from these decision-making tools, like the Operational Net Assessment and the Collaborative Information Environment, and applies his/her experience, intuition, and his understanding of the human dimensions to make a determination on what actions to take.

When today’s technology is working properly, it allows the commander the ability to maintain situational awareness and exercise battle command from great distances and while on the move. The commander’s presence forward is still as critical to battlefield success as it was during the days of Frederick the Great, Napoleon, Grant, Lee, and Patton among others.¹¹ A senior commander in Operation IRAQI FREEDOM, stated in a recent lecture that he felt he needed to meet face to face with his commanders routinely. He felt his “physical presence forward” was the best way to gain a “common view of the enemy,” a personal assessment of the friendly situation on the ground, and to ensure his commanders had a clear understanding of his intent for future operations. More importantly, he stated he felt he could gain a better sense of the fatigue, morale, confidence, and other psychological factors that may have been affecting his commanders and soldiers.¹² Decision support tools and other technologies are enablers in the battle command process, but they cannot replace the importance of the physical presence of the commander on the battlefield or the value of human interaction in understanding and overcoming the psychological friction in war.

When new technologies are introduced, they are rarely mature enough to exploit their full potential capability for the battlefield. User innovation in employing the new technology, providing feedback to refine the technology and its application, and the continued assessment and improvement of employment techniques provide the most dramatic results. A historical example of the innovative use of technology designed for one purpose effectively employed in another role, is the German 88mm Air Defense Artillery gun, which the Germans employed as a field expedient anti-tank weapon in the early stages of World War II. A recent example of such a development is the Joint Direct Attack Munition (JDAM) now used to conduct precision fires. This new capability resulted from an innovative approach to employing the Global Positioning System, originally designed as a military navigational aid. It was adapted for use as a guidance

system, matched with small, powerful computer chips and a moveable fin system that allowed the munitions to “fly” within three meters of the desired target in an all-weather environment.¹³ Once the munition was developed, it was adapted for use from multiple delivery systems. This innovative approach to use a “spin-off” technology to develop a new capability, combined with the creative approach to maximize its employment allowed forces to achieve effects with fewer rounds while causing less collateral damage.

The challenge in this process is to balance the capital investment directed toward the future force with the resources needed for the current force. Some technologies or concepts may provide the opportunity to advance capabilities for the current force. There are systems in place to devote valuable resources toward such “high-risk, high-payoff technologies” based on “urgency of warfighter needs and the maturity of enabling technologies.”¹⁴ A recent article, based on a new report to Congress argued that, “the Pentagon is producing and even fielding billions of dollars' worth of weapons that have not been adequately tested....”¹⁵ Such large expenditures suggest the need for concern in maintaining a balance of resource expenditure for current technology versus testing, evaluating, and improving these systems to provide the capabilities required for future forces. The senior leadership uses judgment and counsel to determine the proper balance of what soldiers need today versus what capabilities future forces will need to provide for national security. The experienced, well-grounded professionals are what will make this process successful. Military leaders must constantly remind the defense community that technology is not a “golden key” to success at any level. Service personnel are the hedge against the friction and fog of war that prevails during a campaign.

LEADERSHIP AND CULTURE

In the volatile, uncertain, complex and ambiguous environment we face for the foreseeable future, if we were to choose merely one advantage over our adversaries it would certainly be this: to be superior in the art of learning and adaptation. This is the imperative for a culture of innovation in the U.S. Army.

— BG David A. Fastabend

To provide the combatant commander a cohesive modular force with the required capabilities, the Army must focus on its core competencies which are to train and equip soldiers and grow leaders, and to provide relevant and ready land power capability to the combatant commander and the joint team.¹⁶ The Army has already initiated actions to transform its culture through actions such as force stabilization and unit manning initiatives. To avoid the formation of ad hoc units, the establishment of cohesive teams that work and train together is key. These

initiatives will allow the core elements of the Army's modular force packages, the units of action and units of employment, to maintain cohesive teams with well developed tactics, techniques, and procedures. These teams learn each others' strengths and weaknesses through tough, realistic training and exercises in order to maximize their strengths and minimize weaknesses. This will increase confidence in leaders, systems, and themselves to provide combatant commanders with capabilities required on the battlefield.

Leader development and joint professional military education are critical components in assuring the seamless integration of the joint force. Focusing on leader development is necessary to adjust to a volatile, complex, uncertain, changing environment and the possibility of rapidly adapting enemies that U.S. forces may face in the future. The educated and well-trained leader whom the Army encouraged to be innovative and flexible is a basic requirement to focus Army culture on defeating competent and adaptive enemies, while integrating his force's capabilities into the joint war-fighting team. As Williamson Murray points out:

Perhaps the most important enabler of transformation and innovation in the past has been the culture of the military organizations that have grappled with an uncertain and ambiguous future, a future made more complex and difficult by tactical, operational, and technological changes, the impact of which are almost impossible to predict under peacetime conditions....If the American military does not desire to repeat the mistakes of the past, then it needs to create a learning culture, where intellectual preparation is as prized as tactical preparation.¹⁷

This concept is equally true today. An educated and learning culture is especially important as the Army works through organizational change, while confronting adaptive enemies. Soldiers are employing sophisticated equipment and are facing increasingly more complex tasks. They must be able to work with joint, interagency, and multinational partners, across the spectrum of operations, in a changing security environment. It is the human dimension -- the educated, well-trained, values oriented service member -- in this process that will determine the success of transformation to meet these demands.

TRAINING, EXERCISES, WARGAMING AND SIMULATIONS

Everyone has now seen that we fight as a joint team. Therefore, how can we best go about improving upon our already existing training to further bring in the notion and the concepts of joint? Here is our ultimate end state of training transformation: no individual, no unit, no staff would ever deploy into combat without first having experienced the rigors and the stress of their joint responsibilities in a robust and realistic training environment.

— Dr. Paul W. Mayberry, Deputy Undersecretary of Defense for Readiness

The services conduct numerous exercises and simulations to hone their skills and refine tactics, techniques, and procedures. These events provide the opportunity to evaluate different forms of operations against a variety of enemy forces under a wide range of environments. Conducting tough, realistic training has been a hallmark of the U.S. military as well as a major contributor to recent successes. The Combat Training Centers with their aggressor forces and difficult terrain provide a unique testing and training environment. Conducting joint training to “train as we fight” will be a critical factor in developing soldiers who can employ the capabilities required by future combatant commanders.

When examining the enemy and his potential capabilities, U.S. forces need to insure that “Red teaming” provides a thinking, adapting adversary that resembles not only the enemy of today but those expected in the future. The Red forces must not be mirror images of U.S. forces with the same values and expected behaviors. Moreover, training should include a level of realism that forces soldiers to appreciate the impact of casualty evacuation, extended operations that press the limits of the maintenance and resupply systems, refugee control, large numbers of enemy prisoners of war, consequence management from exposure to a weapon of mass destruction, loss of critical assets, and the loss of key leadership. Forces should exercise these events so leaders can think through solutions and work through issues before having to perform these functions on the battlefield. Too often these events are omitted from training because they are time consuming and difficult. Additionally, weather extremes, harsh terrain, complex and urban environments should be among the variables used in training to evaluate systems and concepts.

Simulations are limited in how well they can replicate the human dimension involved in warfighting, but they provide for larger force involvement in a terrain and resource constrained environment. Simulations provide a method to work through various scenarios in a combination of live, constructive, or virtual environment to achieve training objectives. An example of this effort is the Joint National Training Capability, which will combine training at the various major service training areas. This will allow service components to fight as a joint team through networked systems and synchronized efforts with the aim of achieving joint training objectives and testing various joint capabilities.¹⁸

There are new developments in the embedded training technology and automated teaching software systems known as intelligent tutoring systems. These technologies would either be built into new systems or developed in stand-alone systems that replicate the equipment that soldiers use. These systems will allow training in various scenarios without major resource expenditure by using digital terrain representations. The goal for these new

systems is to allow individual and collective mission planning and rehearsal.¹⁹ These systems allow for soldiers to progress at their own pace commensurate with their level of skill and experience. This contributes to providing a learning culture by giving soldiers the tools to hone their skills and prepare for future operations.

There is no substitute for actual maneuver and live-fire training to train forces and validate concepts and doctrine. The German experience in the interwar years prior to World War II provides a historical example commonly used to demonstrate effective transformation. The Versailles Treaty placed severe restrictions on German military manpower, equipment, and planning headquarters. Despite these restrictions, the Germans were able to develop a doctrine that incorporated mechanization and air power, emphasizing rapid operations. They also enhanced their ability to operate more decentralized by placing radios in a large number of their tanks. They had superior training programs, conducted field exercises and maneuvers, and conducted war gaming. It was the full participation and open, honest sharing of ideas, encouraged innovation, and thorough evaluation of lessons learned that enabled their transformation to be successful at the tactical level.²⁰ They effectively adapted their tactics, techniques, and procedures based on lessons learned and validation of concepts in actual combat operations over the two years prior to their invasion of France and the Soviet Union. Had they used a framework similar to Gray's seventeen dimensions to view their experiences holistically, they might have avoided strategic failure. The United States should continually assess and reassess both friendly and potential enemy capabilities and not lose focus on the strategic factors of transformation. Otherwise it may make the same mistakes as the Germans, who emphasized transformation at the tactical level but failed to put enough effort on the strategic implications of transformation.

CASE STUDIES THAT SUPPORT CURRENT CONCEPT DEVELOPMENT

The key organizational transformation for the Army is the construct of modular, brigade-sized units of action. These units are intended to be self-sufficient, highly-trained and skilled in their core competencies with the ability to leverage current technology, and adept at using emerging technology. This core element may require capabilities not resident in the unit of action. To minimize the negative effects of creating an ad hoc unit, the sooner the task organization can occur and the unit can train, rehearse, and operate together, the sooner the team can form up and prepare for combat. The team will perform much more effectively if it can conduct situational training exercises to insure its members know how to integrate their skills and capabilities into the effort, and can validate its tactics, techniques, and procedures.

An example of a capability not resident in a unit of action might be military dog teams. This capability proved valuable in both Kosovo and Afghanistan for both explosive detection and crowd control. Linguistic and cultural expertise is another capability that is difficult to have resident in a unit of action. Prior to entering into a conflict, it is beneficial to conduct mission readiness exercises to prepare soldiers for the kinds of situations they might encounter. This helps familiarize them with language differences and how to deal with the local population. This proved of great value in Iraq, when intelligence initially identified a target at one location. Then after soldiers seized that target and questioned those at that location, they discovered the target was just a few houses away. Without the ability to communicate effectively with the local population, the mission could have failed completely. Instead, because of the quick thinking of the leader and the integration of the language capability, units achieved success.

The above incident highlights the need for effectively engaging and gaining the trust and confidence of the local population. In Kosovo, small units spent much time familiarizing themselves with the local population in the small villages. Patrols would immediately recognize new people or trusted local inhabitants would point out the “bad people” so units could pre-empt them. Many locals in Iraq have identified improvised explosive devices (IED) before they could harm U.S. soldiers or pointed out trouble makers before they could instigate further trouble. This trust must go both ways, as guerrillas may end up targeting those who are assisting U.S. forces, which has been happening in Operations IRAQI FREEDOM and ENDURING FREEDOM. Infusion of human interaction on the battlefield is crucial to strategic success.²¹

Additionally, the Army needs to conserve valuable resources by not trying to homogenize itself into a force with the most technological and expensive weapons now. Soldiers need the right weapons and equipment to provide sufficient capabilities required by the combatant commander, but there needs to be a balance of resources consumed in mass production now rather than allow technology to mature and the equipment refinement process to work. The slow fielding timelines and the long lag time required to produce new systems may cause a lack of adequate resources to field the force with updated equipment in the future.

The efforts to transform concepts, capabilities, people, and organizations need to remain flexible, adaptable and versatile. These areas need to provide a broad range of capabilities that are rapidly developed, rigorously tested, experimented with, and evaluated by the users under realistic conditions. Capabilities should be modified to fix deficiencies and updated to incorporate any new technological improvements. If the Army can field these items to a small number of units of action and continually improve them, when certain items need to be fielded in mass to deal with a future major crisis, then the Army could produce and field the best, most

trusted, most advanced pieces of equipment available at the time. An example is the current body armor. Units like the 75th Ranger Regiment started using ceramic body armor in the late 1980s and early 1990s. The initial versions had only a front ceramic plate and the vest came up high on the neck. After use in many training events and exercises, the rangers discovered they had difficulty firing their weapon in the prone position because of the way the armor cut into the neck. In addition, the rangers needed back plates to protect the vital areas of gunners in vehicles or those firing crew served weapons, where their backs were exposed. Once Operation IRAQI FREEDOM began, U.S. forces were on the fourth or fifth generation of improvements. The large amounts of armor vests fielded today have the benefit of the iterative improvements which resulted from ranger-user input. This demonstrates the importance of involving the user, the human dimension, early and continually throughout the process.

There are numerous examples in recent operations that suggest how to adapt lessons learned into the current design of units of action. The initial deployment of forces into Kosovo for Operation JOINT GUARDIAN II contained elements of a mechanized brigade combat team, task organized with an airborne battalion. The command and control element, Task Force Falcon, combined a division staff element with the brigade combat team staff, and incorporated unit and individual augmentation, as well as unit liaisons from multinational units to fill various staff functions. Task Force Falcon coordinated the efforts of the numerous multinational forces by assigning forces to areas of operations best suited to their mobility, capabilities and cultural compatibility. Troops from Russia, Poland, Greece, and Italy, operated throughout the American sector. Russian and U.S. soldiers conducted joint patrols at the squad level on different occasions and built trust among the Serbian and Albanian civilian populations. This required technical and procedural interoperability considerations such as communications and battle drills rehearsals, so the units could function as a team in response to hostile actions. The human interaction and innovation of junior leaders assisted in identifying required capabilities to form a cohesive multinational team that produced the desired effects in this culturally diverse situation.

The battalion task forces that occupied the American-led sector were task organized with airborne and Bradley Infantry companies, M1A1 equipped armor companies, Paladin-equipped artillery batteries, combat engineer companies and various elements of combat support and combat service support elements based on requirements in their areas of operation. In addition, Task Force 1-26 Infantry established Camp Montieth out of a former Serbian artillery camp, which was a smaller base camp adjacent to Gnjilane, the largest city in that sector. Forces on Camp Montieth consisted of over 26 different units to include Navy Seabees, an Army, Navy,

and Air Force Explosive Ordnance Disposal composite detachment, a host of combat support and combat service support units with camp command and control under Task Force 1-26 Infantry. This ad hoc task force continued to change structure and rotate forces in and out throughout its six-month tour. Units performed numerous functions which were not in their normal core competencies. Composite squads ensured that proper expertise was available to provide the manpower to maintain the presence patrols required to secure a safe and stable environment that would allow the United Nations and the numerous nongovernmental and humanitarian assistance organizations to complete their missions. This is similar to the techniques used to complete normal combat engineer functions with a limited number of engineers. For example, in normal operations a core of engineer subject matter experts guide and supervise other non-engineer soldiers in the execution of engineer-related tasks.

Additionally, 1-26th Infantry had just completed an organizational change and major weapons systems transitions while preparing for operations in Kosovo and while deployed to Kosovo. In early 1999, the battalion transitioned from M2A1 Bradley Fighting Vehicles to M2A2 enhanced Bradley Fighting Vehicles and converted to the Limited Conversion Division XXI (LCD XXI) configuration which resulted in the loss of one maneuver company. The unit transitioned from the M60 machinegun to the new M240B machinegun in September of 1999 while conducting stability and support operations in Kosovo. The unit transitioned numerous senior leaders during the preparation, deployment, and initial execution of operations, to include the commander and all field grade officers. The flexibility and adaptability accompanied by intense training and lessons learned during initial execution of assigned missions helped elements of this diverse task force form into a cohesive team. The stabilization and unit manning initiatives that the Army is implementing today will mitigate the risks associated with turbulence in the manning, equipping and organizing of a unit while preparing to deploy or while undergoing complex military operations.²²

Some of the nuances of this operation were the integration of live digital transmission from an unmanned aerial vehicle (UAV) flown out of Camp Able Sentry in Macedonia directly into the tactical operations center of Task Force 1-26 Infantry. The rudimentary means to direct its flight once the UAV was airborne was by telephone to the operator in Macedonia. This new technology allowed the force to monitor more of the sector during the short flight times when the UAV was available. With significant improvement in UAV technology since its use in 1999, these systems have now become an integral source of technology in both Operations ENDURING FREEDOM and IRAQI FREEDOM. This unit also had a tactical local area network established within ten days of establishing Camp Montieth. The networking of forces with the

main base at Camp Bondsteel provided redundant communications to the limited radio reception that resulted from the mountainous terrain and extended distances the units operated in. The network allowed soldiers limited internet and electronic mail access as well. Although the network was established with emerging technology with limited bandwidth it allowed the Army to develop capabilities into major innovations in how forces operate today. Ongoing operations now employ chat rooms, email, and net meeting capability to assist with command and control.

Operation URGENT FURY in Grenada provides an example of how organizations can ignore problems and overlook their failures to provide professed capabilities. Individuals who wrote after action reports that presented a critical view of intelligence failures and portrayed the military in a negative light, were threatened with career-ending evaluations for presenting their negative perspectives. In the age of Network-Centric warfare and the information age with use of the internet, young soldiers and leaders are conducting informal correspondence with other military members through email and unofficial chat rooms. They are able to pass on their valuable experiences and lessons learned in a more personal and immediate forum. Although there are dangers in propagating unsanctioned interpretations of lessons learned, it is important to get all members involved in the process to achieve the best results. The services need honest, constructive input on how to improve unit capabilities to achieve desired effects in the future.

An example of an existing standing joint task force headquarters that can provide lessons learned from previous operations and exercises is the forward deployed United States Army Southern European Task Force in Vicenza, Italy. Although predominately an Army manned headquarters, it is structured to provide the EUCOM commander with the Joint Task Force core that is prepared to accept joint and multinational elements as well as individual augmentees to fill critical positions when mobilized. The SETAF headquarters established the SETAF Infantry Brigade and received the requirement to be prepared to provide a Joint Task Force headquarters, deployable within seventy-two hours in January 1994. In August of 1994 it deployed and became the nucleus for the Joint Task Force for Operation SUPPORT HOPE in Rwanda. Since this initial deployment as the core of a Joint Task Force headquarters, SETAF has conducted annual Battle Command Training Program training exercises, in addition to numerous real-world deployments, integrating joint forces and integrating augmentees which allowed them to develop tactics, techniques and procedures and formulate relationships with joint and multinational units and organizations. The concept development for a Standing Joint Forces Headquarters (SJFHQ) can use the lessons learned from the numerous experiences of

units like SETAF. The cohesive core staff element with the habitual relationships developed over time reduced the negative effect of building an ad hoc team to deal with a crisis situation.

CONCLUSION

The human dimension will have the greatest impact on the transformation process. Transformation is an intellectual process for which technology is an enabler and a catalyst for change. The practitioner of war is the one who innovates and determines how these technologies will be employed to produce the desired effects on enemy capabilities. The key to this cultural change required for transformation is in educating and training leaders, encouraging innovation and full participation in the process by all members of the services. The leadership with the experience, intuition and understanding of the human dimension will make the systems of war successful. It will require honest and realistic evaluation of organizational changes and doctrine, acceptance of new technologies and adoption of new processes, while maintaining flexibility and adaptability to adjust to a changing environment and potentially changing enemy capabilities.

The Army appears to be moving in the right direction with the modular brigade construct that intends to form cohesive core teams, reduce ad hoc formations, and implement force stabilization and unit manning initiatives. Human interaction on the battlefield by interoperable forces, using innovative approaches for achieving effects remains the key to success. People, organizations and doctrine determine how the joint forces will transform. Those involved in the transformation process can learn valuable lessons from past conflicts. The evaluation of each case study should be viewed holistically, based on the framework of sound strategic theory and principles, so the correct lesson can be extracted from the complex context of specific events. Immature technologies and developing concepts presented in the above case studies demonstrate how user innovation and continual reassessment of lessons learned can evolve into future concepts and capabilities.

RECOMMENDATIONS

The Department of Defense should conduct continual reassessment of strategic aims, the technologies available to conduct the war, and the tactics, techniques, and procedures used to prosecute the war. More importantly, joint forces must be able to maintain the flexibility and agility to make timely changes to affect the outcome of the war. The United States needs to focus on learning the right lessons from its past conflicts by examining not only what went right, but also by examining what went wrong and what adjustments potential adversaries have made as a result of United States actions. The human dimension of transformation is the critical factor

in this process. The institutional Army has effectively developed educated, well-trained, values oriented service members, and this must continue despite the high operational tempo. The services need to create a learning organizational culture that encourages innovation and the willingness to take prudent risks. Forces need to be able to apply the required capabilities, at the right time and place to produce the required effects to defeat future enemy capabilities.

The joint force needs to invest more in the human dimension versus focusing on high-dollar platforms. It needs to find a way to reduce the weight and bulk of the soldiers' load since they are required to carry more high technology equipment, almost all of which requires batteries. It needs to develop effective hybrid fueled vehicles or some similar more fuel efficient variant. These vehicles need to be more durable and require less maintenance to reduce the logistics tail required to support their effort, which will assist in reducing the forward footprint. Forces need to identify capabilities not immediately required in the area of operations, bringing in only what is needed and calling forward resources as the situation requires, reducing force protection and sustainment requirements. This change in thinking requires the trust and confidence that engaged forces will receive the necessary capabilities and resources in time to produce the desired effects. The continued effort in training and operating as a joint force, with a focused effort in developing innovative solutions, encouraged by a military with a learning culture, will insure this process remains on a logical path.

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ENDNOTES

¹ United States Army, *Transformation Roadmap 2003*, ix.

² Department of Defense, *Transformation Planning Guidance*, April 2003, 3.

³ Colin S. Gray, *Modern Strategy* (New York: Oxford University Press, 1999), 1. Gray elaborates on page 9... "[T]actical forms of war alter with political, economic, social, and technological change, war and strategy retain their integrity as distinctive phenomena." Gray presents his seventeen dimensions on page 24 and he further argues, based on his analysis of Clausewitz and Michael Howard that "strategy can be thought of usefully as having many broad, pervasive, and interpenetrating dimensions." He clusters his seventeen dimensions into three categories: The first is 'People and Politics', which comprises people; society; culture; politics; and ethics. The second category, 'Preparation for War', includes economics and logistics; organization (including recruitment, training, and most aspects of armament); information and intelligence; strategic theory and doctrine; and technology. The final category, 'War Proper', composes of military operations; command (political and military); geography; friction (including chance and uncertainty); the adversary; and time." Gray demonstrates the importance of strategic culture on page 25 stating "...while historical experience as interpreted by and for the present day is probably best considered in the (strategic) culture. For example, while U.S. strategy today can be said in part to be a product of American historical experience, that strategy is also the product of how Americans today choose to interpret their country's historical experience.

⁴ Ibid., 25.

⁵ Department of Defense, Joint Operations Concepts, (Washington, D.C: U.S. Government Printing Office, November 2003), 1. The Joint Operating Concepts are derived from the Joint Operations Concepts and "describe how a Joint Force Commander will plan, prepare and execute joint operations across the full range of military operations." Joint Operating Concepts, are currently defined as Major Combat Operations (MCO), Stability Operations (SO), Homeland Security (HS), and Strategic Deterrence (SD) will "guide the development of joint tasks and ultimately desired joint capabilities required for success. These documents then further refine these concepts in joint functional concepts, currently defined as Command and Control, Battlespace awareness, Force application, Focused logistics, and Protection, that integrate related military tasks to attain capabilities required across the range of military operations. The Army structures transformation within the context of these joint concepts." United States Joint Forces Command, Collaborative Information Environment (CIE) Concept Primer, October 2003 states, "Collaborative Information Environment (CIE) is a virtual aggregation of individuals, organizations, systems, infrastructure, and processes to create and share the data, information, and knowledge needed to plan, execute, and assess joint force operations and enable a commander to make decisions better and faster than the adversary." United States Joint Forces Command, Joint Intelligence, Surveillance, and Reconnaissance (JISR) Concept Primer, October 2003 states, "Joint Intelligence, Surveillance, and Reconnaissance (JISR) is a net-centric approach to the management of intelligence, surveillance, and reconnaissance capabilities, aimed at supporting the demands of the joint war-fighter across all domains and all levels of war." United States Joint Forces Command, Operational Net Assessment (ONA) Concept Primer, October 2003 states, "Operational Net Assessment (ONA) provides a methodology and framework used to develop a coherent, relevant, and common understanding of the operating environment, of the adversary as an adaptive entity within that environment, and of ourselves."

⁶ Ibid., 3.

⁷ United States Joint Forces Command, Joint Operations Concepts (JOpsC) Concept Primer, September 2003, 1.

⁸ United States Army, *Transformation Roadmap 2003*, ix-x.

⁹ Douglas A. Macgregor, *Transforming Under Fire: Revolutionizing How America Fights*, (Westport, CT: Praeger Publishers, 2003) 8.

¹⁰ According to the U.S. Joint Forces Command Online glossary, "Effects-Based Operations (EBO) is a process for obtaining a desired strategic outcome, or effect, on the enemy through the synergistic and cumulative application of the full range of military and nonmilitary capabilities at the tactical, operational, and strategic levels." Available from the internet at <<http://www.jfcom.mil/about/glossary.htm>>; Internet: accessed 12 February 2004. United States Joint Forces Command, Draft Effects-Based Operations (EBO) Concept Primer, September 2003, pages 3-5 states, "Effects-Based Operations (EBO) has four components: knowledge superiority, an effects-based planning process, dynamic and adaptive execution, and accurate and timely effects-based assessment." Strategic effects describe the desired change in the enemy's behavior, often a coercion, deterrence, or stabilization. Operational-level effects describe changes in the enemy's ability to operate coherently, i.e., the denial of the enemy's ability to use key capabilities or elimination of the enemy's operational options. Tactical effects describe the way we [U.S.] affect key enemy systems, i.e., the reduction of the enemy's integrated air defense systems to independent, uncoordinated, individual platforms through disrupted connections to target acquisition radars."

¹¹ Gary B. Griffin, "The Directed Telescope: A Traditional Element of Effective Command" Combat Studies Institute Report, 1985; available from <<http://www-cgsc.army.mil/carl/resources/csi/Griffin/GRIFFIN.asp>>; Internet: accessed 8 March 2004.

¹² The experiences and ideas related in this paragraph are based on remarks made on 7 January 2004 by a senior leader who participated in Operation IRAQI FREEDOM to the Advanced Strategic Arts Program students and a briefing given on Battle Command dated 16 December 2003. Van Creveld's statement reinforces this position, "...any given technology has very strict limits. Often the critical factor is less the type of hardware available than the way it is put to use...victory often depends not so much on having superior technology at hand as on understanding the limits of any given technology, and on finding a way of going around those limitations...dependence on technology inevitably creates vulnerabilities that an intelligent enemy will not be slow to exploit. The opportunities for doing so, moreover, increase rather than diminish with the complexity of the technology in use." Martin Van Creveld, *Command in War* (Cambridge, Massachusetts: Harvard University Press, 1985), p.231. Creveld cites the following source for this idea. P.T. Rhona, *Weapon Systems and Information War* (Seattle Washington, 1976), pp. 10-14

¹³ Phil Craig, "The Technology That Changed War," Public Broadcasting System Online, Available from Internet http://www.pbs.org/wnet/innovation/episode4_essay1.html. Accessed 7 March 2004.

¹⁴ United States Army, *Transformation Roadmap 2003*, 7-12.

¹⁵ David Wood, "Pentagon Regularly Shortcuts Operational Testing Of Weapons, Report Says," 12 February 2004; Newhouse News Service Online at Newhouse.com; available from <http://www.newhousenews.com/archive/wood021204.html>; Internet; accessed 12 February 2004.

¹⁶ The Army core competencies listed in the United States Army, *Transformation Roadmap*, 2003 page 1-1 are "train and equip Soldiers and grow leaders" and "provide relevant and ready land power capability to the combatant commander and the joint team."

¹⁷ Dr. Williamson Murray, "Transformation And Professional Military Education: Past As Prologue To The Future," *National Security Challenges for the 21st Century*, October 2003, 16-17.

¹⁸ Dr Paul W Mayberry and interviewer Jordan Fuhr. "Training Transformation." Military Training Technology Online. Volume 8, Issue 4 November 19, 2003. Available from Internet http://www.mt2-kmi.com/archive_article.cfm?DocID=267 Accessed 10 February 2004, 3.

¹⁹ Patrick Chisholm, "Tutoring for Future Combat" Military Training Technology Online. Volume 8, Issue 3 September 8, 2003; available from <http://www.mt2-kmi.com/archive_article.cfm?DocID=219>; Internet; accessed 10 February 2004.

²⁰ James S. Corum, *The Roots of Blitzkrieg*. (Lawrence, Kansas: University Press of Kansas, 1992), 198. . As James Corum writes in his book *The Roots of Blitzkrieg*, "The evolution of German tactics depended largely on the success of the maneuvers and war games in which the Germans tried out the new concepts." Corum attributes the superior training programs for the German success at the beginning of the Second World War. (Corum p 205)

²¹ These accounts of actions in Iraq are taken from electronic mail correspondence with LTC Steve Russell, a battalion commander operating in Tikrit, Iraq.

²² These accounts are from my experience as the commander of 1-26 Infantry from 29 June 1999 to 15 June 2001 and from accounts recorded in the 1999 edition of the 1-26 Infantry Annual Historical Review, as part of the 1st Infantry Division Annual Historical Record.

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